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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,470	07/01/2003	Atsushi Yasuno	03500.017390.	1051

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FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

STOUFFER, KELLY M

ART UNIT	PAPER NUMBER
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1792

MAIL DATE	DELIVERY MODE
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12/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/609,470

Applicant(s)

YASUNO, ATSUSHI

Examiner

Kelly Stouffer

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 30 October 2007 has been entered.

Response to Arguments

Applicant's arguments filed 30 October 2007 have been fully considered but they are not persuasive. The applicant argues that Moleshi uses a plurality of discharge means in its invention and not two RF electrodes attached to a power source as now claimed. While it is true that in some instances Moleshi does use different discharge means throughout the document, Moleshi also discloses the use of RF power sources in addition to the chuck that acts as an electrode attached to an RF power source (column 13 lines 7-17), the microwave cavities of the invention (of which there are two or more) may also be RF induction discharge tubes, also RF energy sources which by definition are known to come from electrodes attached to RF energy sources (see column 13 lines 55-60 and column 14 lines 30-40). In addition, it would be obvious to

include at least two RF energy sources, as different powers of RF energy perform different functions in Moleshi (see column 15 lines 27-67.

Further, because the rejection of the claims is under Moleshi in view of Chan, Chan teaches a plurality of RF sources, or electrodes, that are attached to the RF power source and matching network as partially described in the abstract and shown in the figures of Chan. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Therefore, for at least these reasons, the rejections of the previous office action are maintained and repeated here.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moleshi (US 5273609) in view of Chan (US 5653811).

Regarding claims 1-4, Moleshi includes a film formation process for controlling film formation temperature to overcome thermal stress limitations (column 1 lines 49-55 and column 6 lines 3-21) in which a source gas is fed into a discharge space of a reactor and electric power is applied to generate discharge in the discharge space to decompose the source gas, forming a deposited film on a substrate by switching electric power between a first and second discharge means to form a film with semiconductor layers of the same conductivity (columns 7-8 and 10-11 et seq.) The multi-switch processing apparatus of Moleshi is based upon energy sources (column 8 lines 1-10), and the process activation switch for the switching discharge means may be substrate temperature (column 8 lines 19-25) that operates with a preset temperature at its 'on' state and turns 'off' and switches at a predetermined energy level, or above a preset temperature (column 8 lines 30-55). Moleshi also discloses the use of RF power sources in addition to the chuck that acts as an electrode attached to an RF power source (column 13 lines 7-17), the microwave cavities of the invention (of which there are two or more) may also be RF induction discharge tubes, also RF energy sources which by definition are known to come from electrodes attached to RF energy sources (see column 13 lines 55-60 and column 14 lines 30-40). In addition, it would be obvious to include at least two RF energy sources, as different powers of RF energy perform

different functions in Moleshi (see column 15 lines 27-67). Moleshi does not include using a device that has capabilities for moving the substrate through the reactor during film formation to be coated by discharge means disposed within the reactor. Chan teaches using a device that has capabilities for moving the substrate through the reactor during film formation to be coated by discharge means disposed within the reactor in order to sequentially treat more than one substrate and use a plasma source attached to the reactor the produced plasmas from specific gases (column 4 lines 8-31 and Figures 5 and 6). Additionally, Chan teaches the plasma sources of its disclosed invention may be used to make plasmas of any size (column 1 lines 40-60). It is therefore obvious that one of ordinary skill in the art could easily apply this invention to a wafer that is belt shaped, as it would be functionally equivalent in Chan and could be used for other, larger applications such as windows. Additionally, it is obvious that since the substrate is moving, any subsequent step after the first in Chan would be performed on a different position of the deposited film. Chan also teaches a plurality of RF sources, or electrodes, that are attached to the RF power source and matching network as partially described in the abstract and shown in the figures of Chan.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Moleshi to include using a device that has capabilities for moving the substrate through the reactor during film formation to be coated by discharge means disposed within the reactor as taught by Chan in order to sequentially treat more than one substrate and use a plasma source attached to the reactor the produced plasmas from specific gases.

Regarding claims 5-12, the process of Moleshi uses multiple plasma sources and senses multiple conditions such as temperature, time, voltage, and current which activate switches that turn the plasma source from one to the other (column 4 lines 5-43, column 8 lines 10 – column 12 line 36, and Figure 2).

Regarding claim 14, Chan discloses that distances between sources depend upon the shape and uniformity of the desired plasma (column 3 lines 19-32 and column 4 lines 1-7). Chan additionally teaches that chamber pressure affects power to the plasma sources and plasma density. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Moleshi and Chan to include the claimed ranges of source distance and pressure, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art absent evidence showing criticality for the claimed ranges. *In re Aller*, 220 F.2d 454, 105 USPQ 223 (CCPA 1955).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly Stouffer whose telephone number is (571) 272-2668. The examiner can normally be reached on Monday - Thursday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kelly Stouffer
Examiner
Art Unit 1792

kms



TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER